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# Does Foreign Capital Inflows Really Stimulate Domestic Investment: A Case Study of Pakistan

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## *Abstract*

*By using system of equations and OLS estimation techniques, this paper examines the impact of foreign capital inflows on domestic investment in Pakistan. The system of equation shows that there is more than one-for-one relation between FDI and domestic investment, while the role of portfolio and loan in stimulating domestic investment is insignificant. The system of equation also shows that the impact of FDI on domestic investment is stronger than the role of domestic investment in attracting FDI. Similarly, OLS techniques confirmed that FDI complements domestic investment, particularly private investment. Contrary to other forms of capital inflows, FDI is positively and significantly correlated with domestic investment in different model specifications.*

*Key words: capital inflows, domestic investment, system of equations, Pakistan*

*JEL Classification: F23, F21, F41*

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## **1. Introduction**

A number of theories from mainstream economics consider foreign capital inflows necessary, if not sufficient, factor for economic growth and development. Positive spillover effect and contribution of foreign capital inflows, particularly of FDI, to host economy has acquired the role of axiomatic truth in economics. As a result, many of the developing countries are competing for foreign investment to put the economy on growth trajectory and finance the gap between domestic saving and investment.

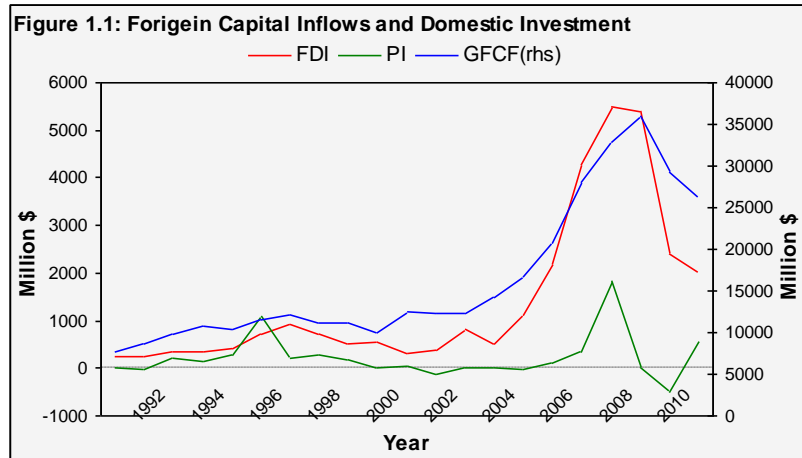
Modernization hypothesis, based on neoclassical and endogenous growth theories, consider that FDI contribute to the development of host country by increasing competition, crowding-in domestic investment, and transfer of technology etc. The modernization perspective is strongly influenced by the fundamental economic principle of capitalist economics that investment is the crucial locomotive of long-term growth. Modernization hypothesis propagate FDI as the panacea prepared in the laboratories of free market economies to cure the problems of economic ailing and failings.

An alternate perspective based on dependency theory of orthodox economics suspect that the role of foreign capital inflow is detrimental to growth and it cannot substitute indigenous growth strategy. Dependency theory considers the huge influx of capital inflows to developing countries in the form of FDI as a new wave of colonialism and imperialism. Dependency theory asserts that FDI is a tool of exploitation that adversely affects the growth prospect of developing world by crowding-out and displacing domestic investment. Bornschier and Chase-Dunn (1985) claimed that foreign investment creates an industrial structure in which monopoly is predominant, leading to 'underutilization of productive forces'. Similarly, rent seeking FDI and FDI working in enclaves rarely contribute to growth and normally displaces domestic activities in the host country. This shows that the link between foreign capital inflows, growth and domestic investment is not linear and its impact depends on the overall incentive and capability structure of the host country.

Adams (2009) considers that different findings for cross-country findings suggest that country-specific studies may provide more information about the real effect of FDI.

Pakistan, a developing country, is experiencing a huge gap between domestic saving and investment. Pakistan strived to attract foreign capital inflows in order to ensure growth, fill the saving gap and stimulate domestic investment, knowing that the spillover impact of foreign capital

inflows help in catching up. To attract foreign capital, Pakistan introduced a number of reforms and offered generous incentives in the start of 1990's. Since then, capital inflows to Pakistan, especially in the



form of FDI, increased many folds; however, the flow was confined to a few prime sectors that have missing links to the main economy. Figure 1.1 shows that foreign and domestic investment in Pakistan has strong co-movement and have noticed growth over the years compared to portfolio investment. Therefore, it is important to know FDI stimulates domestic investment or it is other way around. Similarly, we want to know whether foreign capital inflows, especially FDI, crowd-in or crowd-out domestic economic activities in Pakistan.

The rest of the paper is organized as follows. Section 2 discusses literature review, section 3 deals with methodology and data and section 4 is consisting of results and discussion. Section 5 is the conclusion.

## 2. Literature Review

Like its theoretical counterpart, most of the empirical work on FDI has focused either on underlying factors to explain the flow of FDI across countries or on explaining the

cyclical behavior of FDI flows employing macroeconomic variables and evaluating the effect of FDI flows on trade and growth. However, a few studies showed interest in understanding the link between FDI and domestic investment.

Studies by Bosworth (1999) and Hecht et al. (2004) confirmed that FDI complement domestic investment, while others consider that FDI adversely affects host economy by crowding-out domestic investment. Agosin and Mayer (2000) and Mwilima (2003) found that FDI inflows positively influence domestic investment and growth in Asia where most of FDI is flowing in to manufacturing sectors, while the role of FDI in increasing domestic activities is insignificant, or negative in case of Sub-Saharan Africa (Adams, 2009), where FDI is predominantly attracted to primary sectors. It is important to note that even in China and other Asian countries where FDI has been known to be more effective, Keshava (2008) has shown that domestic investment is more effective than FDI in promoting growth.

Bosworth and Collins (1999), employing a panel data for 58 developing countries, found that a dollar of capital inflow translates into 50 cents increase in domestic investment. However, when the capital inflows take the form of FDI, there is a near one-for-one relationship between the FDI and domestic investment. Hecht (2004) confirmed that FDI crowd-in domestic investment; however, the relation is less than one-for-one. This implies that FDI crowd-in domestic investment. Similarly, Desai, Foley and Hines (2005) report time series evidence that foreign and domestic investment are positively correlated for U.S. firms. However, for OECD countries, Devereux and Freeman (1995) concluded that bilateral flows of aggregate investment funds between seven OECD countries did not confirm tax-induced substitution between domestic and foreign investment.

Kindleberger (1969) suggested that in order to think about FDI, we must not ask why capital might flow into a country, but rather why some particular asset would be worth more under foreign than under domestic control. Encarnation and Wells (1986) are of the

opinion that FDI is more effective in competitive sectors, while the effect of FDI is negative if invited to heavily protected industries.

In Razin and Sadka (2002) the gains from FDI are reflected in a more efficient size of the stock of domestic capital and its allocation across firms. FDI firms are typically the ‘cream’ (high productivity firms). In addition, FDI inflows enlarge, under plausible assumptions, the size of the aggregate stock of domestic capital. This result is consistent with Hecht et al. (2002) who found that the effect of FDI inflows on domestic investment is significantly larger than that of portfolio equity or loan inflows. They also provide evidence that FDI inflows promote efficiency and after controlling for the effect of capital accumulation on GDP growth, the effect of FDI on domestic investment is much higher than that of other inflows.

### **3. Methodology and Data**

#### ***3.1 Capital inflows and Domestic Investment***

To measure the impact of capital inflows on domestic investment, we use the Hecht, Razin and Shinar (HRS) model for Pakistan in which Hecht et al. (2004) tried to capture the impact of different form of investment inflows. The model is based on system of four equations where domestic investment (DI), foreign direct investment (FDI), Portfolio investment (P) and Loans (L) are dependent variables and observations. As the vast literature confirms that capital inflows not only affect domestic investment but it also gets affected in the process. Therefore, the system of equation is the true representation of reality. Every equation also includes the dependent variable with a one-period lag as an explanatory variable. The quality of this model is that it measures the impact of all kind of investment inflows, including FDI, to a host country. This will throw light on the importance of FDI in the presence of other types of investments from a different angle. The system of equations is given as

$$DI_t = \beta_{11} + \beta_{12}DI_{t-1} + \beta_{13}GDPg_t + \beta_{14}FDI_t + \beta_{15}P_t + \beta_{16}L_t + \beta_{17}G_t$$

3.1

$$FDI_t = \beta_{21} + \beta_{22}FDI_{t-1} + \beta_{23}DI_t + \beta_{24}GDPg_t + \beta_{25}USint \quad 3.2$$

$$L_t = \beta_{31} + \beta_{32}L_{t-1} + \beta_{33}DI + \beta_{34}GDPg_t \quad 3.3$$

$$P_t = \beta_{41} + \beta_{42}P_{t-1} + \beta_{43}DI_t + \beta_{44}GDPg_t + \beta_{45}USg \quad 3.4$$

The four-equation system has four endogenous variables: DI, FDI, P and L. Lagged dependent variables on the right hand side of the equation system also help us avoid non-stationarity of the residuals in the above 4-equation system. The exogenous variables used for identification are government expenditure (G), lagged dependent variables and the US growth (USg) and interest rates (USint). The description of variables is given below.

<b>Table 3.1: Variables Employed for HRS Model</b>	
<i>DI</i>	gross domestic investment (percent of GDP)
<i>FDI</i>	Foreign Direct Investment (percent of GDP)
<i>L</i>	Bank Loans (percent of GDP)
<i>P</i>	Portfolio Investment Flows (percent of GDP)
<i>GDPg</i>	Annual Percentage Growth Rate of GDP
<i>G</i>	General Government Consumption (percent of GDP)
<i>USg</i>	GDP growth of USA
<i>USint</i>	Long term US interest rate

### 3.2 FDI and Domestic Private Investment

It is considered that FDI plays a very important role in stimulating and complementing domestic investment. Therefore, to know the impact of FDI on domestic investment we employ the following regression.

$$DI_t = \alpha + \beta FDI_t + \lambda GDP_{t-1} + \gamma int_t + \varepsilon_t \quad 3.5$$

$DI_t$  and  $FDI_t$  represent domestic and foreign direct investment respectively, where  $t$  denotes time period under observation (i.e. year from 1990-2010).  $GDP_{t-1}$  is the lagged GDP at current prices and  $Int_t$  is interest rate at time  $t$ , while  $\varepsilon_t$  is an error term.

To go one step further to explore the role of FDI in domestic investment, we divide it into two categories i.e. public investment and private investment. Domestic investment is crucial not only for attracting foreign capital inflows but also for sustainable growth. We intend to determine the role of FDI in both the cases. Below the equation 3.6 captures the role of FDI in private investment.

$$PrivInv / GDP = \alpha + \xi Z + \theta FDI / GDP + \lambda PubInv / GDP + \nu \quad 3.6$$

$Z$  is the vector of controlled variables. The equation 3.6 shows the impact of foreign capital inflows on private investment in Pakistan in the presence of public sector investment, because the role of public investment both in attracting FDI and stimulating domestic investment in developing countries is very important.

<b>Table 3.2: Variables in Private Investment Regression</b>	
$PrivInv / GDP$	private investment as a ratio to real GDP
$FDI / GDP$	The net inflow of foreign direct investment as a ratio to real GDP
$PubInv / GDP$	Public investment as a ratio of real GDP
$Hc$	Literacy rate
$MW$	Monthly manufacturing wages
$Openness$	Trade to GDP ratio
$EC$	Electricity consumption
$LagExp$	Lag exports
$LR$	Lending Interest Rate
$\nu$	The random error term.

### 3.3 FDI and Domestic Investment

Is foreign and national investment complimentary? And what are the linkages between foreign and domestic investment. De Mello (1999) argued that if FDI is



expected to affect economic growth positively, it requires a complementary relationship between FDI and domestic investment, at least in the short term.

The nexus between FDI and overall investment as well as economic growth in host countries is neither self-evident nor straightforward. This is an insufficiently explored territory. It is observed that FDI usually receive more warm welcome and get preferable treatment as compared to domestic investment. However, foreign and domestic investment is interlinked. FDI can complement domestic investment and can crowd it out, depending on the structure of the economy, type of sector and data of FDI. To observe whether FDI crowd in or crowd out the domestic investment, we use the following equation

$$DIN / Y_t = \alpha_0 + \alpha_1 GDPg + \alpha_2 Crdt / Y_t + \alpha_3 FDI / Y_t + \beta_4 ToT_t + \beta_5 REER + \beta_6 LR_t + \beta_7 D_t + \varepsilon_t$$

3.7

Considering that the complementary relation between FDI and national investment is at least partly policy driven. This necessitates inclusion of a dummy for policy change or for polity. Similarly we introduced a dummy for law and order situation. Other explanatory variables used are

<b>Table 3.3: Variables in FDI Impact on Domestic Investment</b>	
<i>DINV / Y</i>	Domestic investment as a share of GDP
<i>GDPg</i>	GDP growth rate
<i>CRDT / Y</i> <sup>2</sup>	domestic credit availability as share of GDP
<i>FDI / Y</i>	net foreign direct investment inflows as share of GDP
<i>ToT</i>	terms of trade (unit price of exports divided by unit price of imports)
<i>LR</i>	the real lending rate
<i>D (P)*</i>	Dummy for polity, takes the value of 1 from 1998 to 2007
<i>REER</i>	Real Effective Exchange Rate
<i>D (W)*</i>	Dummy for law and order, takes the value of 1 from 2001 to 2010

\*used alternatively

<sup>2</sup> which Blinder and Stiglitz (1983) and Fry (1995) considers one of the most important determinants of the investment in developing countries)

Pradeep (2000) considers fixed effect model appropriate for a single country and large number of observation. However, like many developing countries, refined sectoral data foreign and domestic investment is an obstacle in using panel estimation technique. Therefore, we rely on OLS estimation.

## **Data**

We employed data from 1990 to 2010 for all the variables and the data is collected from World Development Indicators of World Bank and Handbook of Statistics on Pakistan Economy 2010 of State Bank of Pakistan.

## **4. Results and Discussion**

### ***4.1 HRS Model***

In this section we try to capture the impact of different forms of capital inflows on domestic investment in case of Pakistan. This will highlight the importance of FDI from a different perspective. The results of HRS model, given in table 4.1, shows that it is only FDI contribute to increase in domestic investment, while other forms of capital inflows (portfolio and loans) have insignificant role in stimulating domestic investment. The results show that a one percent increases in FDI increases domestic investment by 1.16 percent (C (4) in table 4.1). Our results confirm the finding of Bosworth that there is one-for-one relation between FDI and domestic investment. In the system domestic investment also play a positive role in attracting FDI and portfolio investment, while the role of domestic investment in determining loans is insignificant.

The results not only confirm a strong link between FDI and domestic investment but it also shows that it is only FDI that contribute to the development of host economy. On the other hand increase in domestic investment attracts more FDI, however, the role of domestic investment in attracting FDI is not as strong as that of FDI in determining domestic investment. Thus, the policy implications are very clear: an increase in the inflows of FDI to Pakistan will not only contribute growth by transfer of technology and enhancing competition but also by stimulating domestic investment and generating more indigenous economic activities.

<b>Table 4.1: Results of HRS Model</b>		
	Coefficient	Prob.
C(1)	11.62611	0.0026*
C(2)	0.413139	0.0189*
C(3)	0.143966	0.2248
C(4)	1.166188	0.0068*
C(5)	-0.188537	0.1577
C(6)	0.000416	0.3891
C(7)	0.180651	0.1556
C(8)	-2.413334	0.0344*
C(9)	0.540497	0.0009*
C(10)	0.155723	0.0340*
C(11)	0.128020	0.0027*
C(12)	-0.093585	0.3151
C(13)	6.084558	0.0857**
C(14)	0.663116	0.0000*
C(15)	-0.017010	0.9314
C(16)	0.562943	0.0001*
C(17)	-3160.175	0.0010*
C(18)	-0.177357	0.3435
C(19)	165.6274	0.0011*
C(20)	11.04328	0.7709
C(21)	91.08815	0.0683**
DI=C(1)+C(2)*DI(-1)+C(3)*GDPG+C(4)*FDI+C(5)*L+C(6)*P+C(7)G		
R-squared	0.80	
FDI=C(8)+C(9)*FDI(-1)+C(10)*DI+C(11)*GDPG+C(12)*USINT		
R-squared	0.82	
L=C(13)+C(14)*L(-1)+C(15)*DI+C(16)*GDPG		
R-squared	0.74	
P=C(17)+C(18)*P(-1)+C(19)*DI+C(20)*GDPG+C(21)*USG		
R-squared	0.40	

\* and \*\* significant at 5 and 10 percent level

## 4.2. FDI and Domestic Private Investment

The multivariate and granger causality results confirmed a strong two way causal link between FDI and domestic investment in case of Pakistan (Hasanat et al., 2011). Similarly, we also concluded in the above section that FDI and domestic investment mutually determine each other. However, it is not clear whether this result can be generalized both for public and private domestic investment? It is considered that the role of private investment is crucial in development. Therefore, to understand the impact of FDI on domestic private investment, we run OLS regressions for domestic private investment. The results are given in table 4.2.

<b>Table 4.2: FDI Impact on Private Investment</b>		
	Coefficient	Prob.
C	11.20977	0.1663
FDI/GDP	1.209717	0.0199*
PUB/GDP	0.019931	0.9673
LagExp	0.642040	0.0580**
Openness	0.100401	0.3004
MW	-0.013546	0.0546**
LR	-0.150250	0.4818
HC	0.499988	0.2181
EC	0.003234	0.7573
R-squared	0.93	
DW	2.77	
F-Statistic	19.9	0.000017

\* and \*\* significant at 5 and 10 percent level

The results show that a one unit increase in FDI increases domestic private investment by 1.2 units. This re-confirms that FDI complement domestic private investment. Similarly, Lag exports increases domestic investment while increase in wages decreases domestic investment (conditional to no improvement in productivity). Other explanatory variables in equation are insignificant, even public sector investment in case of Pakistan is playing no role in determining domestic investment. Probably much of the public sector investment is dubious and rarely coincides with the development strategy.

#### **4.3. Impact of FDI on Domestic Investment**

To further explore the role of FDI in domestic investment, we introduced a number of non traditional variables in equation 3.7 in order to determine whether FDI crowd-in or crowd-out domestic investment in the presence of variables that depict the integration of Pakistan to world economy. In the last decade, the political and law and order situation are not stable in Pakistan. We tried to capture the impact of that through the dummies for war and polity.

<b>Table 4.3: Dependent Variable – Domestic Investment</b>		
	Coefficient	Prob.
C	9.958154	0.0202*
GDPg	0.121773	0.1446
FDI/Y	1.873013	0.0003*
Crdt/Y	-0.060522	0.4620
LR	-0.452327	0.0261*
REER	0.096420	0.0053*
TOT	-0.034646	0.0119*
DP	1.948392	0.0007*
DW	-2.630619	0.0068*
R-squared	0.932970	
F-statistic	20.87811	
Prob(F-statistic)	0.000006	
Durbin-Watson stat	3.054905	

\* Significant at 1 percent level

The results are given in table 4.3 shows that FDI as a ratio of GDP (FDI/Y) is playing a vital role in stimulating domestic investment. The rise in FDI inflows increases domestic investment more than proportionally. The results of FDI impact on domestic investment is consistent through out our study. This confirms again that FDI complement domestic investment.

We introduced two dummies in the equation to capture the role of political setup and war on terror role in determining domestic investment. Both the variables are significant at 1 percent level. The results show that domestic investment increases in non democratic setup, probably because policies are more stable under non-democratic setup in Pakistan. While war dummy severely reduced domestic investment in Pakistan, showing that law and order situation is crucial for investment.

## 5. Conclusion

This paper confirmed the role of foreign capital inflows in the form of FDI in stimulating domestic investment, particularly private investment, in Pakistan. The result shows that FDI is positively and significantly correlated with domestic investment in all the model specifications. Usually the domestic investment increases the credibility of an economy and encourages foreign investors. However, in case of Pakistan foreign investment is a sign of credibility for domestic investors. FDI increase the domestic economic activities

by introducing new ideas, transferring latest technology and providing access to international market. Similarly, Growing foreign investment may increase levels of domestic activity by improving the profitability and competitiveness of domestic operations as firms expand globally.

In this backdrop, the policy implication for Pakistan is straight forward. To get more economic growth and domestic investment, attract more FDI. Otherwise, the lack of foreign direct investment may constraint overall economic activities. in the era of globalization and economic integration, the role of FDI in stimulating domestic investment and sustainable growth is essential and unique. At the same time the merits of FDI exceed almost in every aspect than other form of fund raising, particularly of portfolio investment and loans.

FDI is an intangible guarantee of credibility of a region or of a country. It joins the missing links between the backward and forward linkage to the process of production and help in exploring new markets. In the wake of frequent economic and financial crisis and deteriorating law and order situation, our results suggests that Pakistan can rely on FDI in order to complement national savings and promote economic development.

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